

Lansing, Kas  
Muscatine M.  
Davenport

St. Joseph, Mo. <sup>1903</sup>

W. & S. W. of Iowa City.

Iowa City

DOCKET  
Scott Co. 1904  
NOTES

Aug. & Nov. 1903.

across Missouri  
El Paso  
Alpine

M



B. Shinnick  
Iowa City  
Iowa

200

1870

Trip to El Paso, etc.

Left Iowa City at 6.<sup>37</sup> AM.  
Wednesday, Aug. 26-1903.

Went to Cedar Rapids, & there  
attended meeting of Council of  
Higher Education.

Aug. 27. Thurs.

Left Cedar Rapids at  
3.<sup>35</sup> AM, Collected at Columbus, Ia.

Left Columbus Ia. at 7.<sup>20</sup> AM  
Rained all night & much of

day.

From Lincoln to Abilene in  
Iowa, could see yellow brown  
with paler (whitish) parts.

(Which also appears in Iowa, Arkansas  
& maybe also in Iowa) are then

seen. On places near Abilene, the  
drift goes on to surface, & then  
is thin. The topography from

Lincoln to Abilene is typical  
Hanson - rolling

Below Alton, near Grand  
river a cut shows rock,  
limestone capped with thin  
sand coming almost to  
surface - almost no drift &  
no loess.

(Between Alton & Coaling  
very flat prairie -  
great rolling - Kansas)  
Grand  
river (the old river) red  
glacial-like drift, -

(Coaling station is a new  
wharf on the river & N. Mo.  
takes possession of whole  
further)

Beyond station yellow  
loam-like drift, with few  
& small gravel, & very  
little if any loess.

Topography of the  
river valley - rolling -  
Kansas.

Beyond Alton and until  
it is reached the country  
is not very rolling, - gentler  
than is the rule with the  
Kansas. Exposure shows  
some layers of yellow loam-like  
drift with small pebbles.  
At Coaling there is under  
the upper yellow loam a  
stratified layer - Loess - below  
the flat country extends  
to within a couple of  
miles of first station  
below Lathrop (Kansas)

The hills here gradually  
appear but not in our view  
time that we reached the hills -

That drift? (yellow) may  
be something else. - This  
whole region doesn't look  
like Kansas at all.



Aug. 28 - Fri.

We left Kansas City  
at 11 P.M. last night, & awoke  
at Durham, Kas.  
at about 6<sup>25</sup> A.M. - the  
train being due at 4:37 A.M.  
The country is great  
open plain. But farms  
looking well, groves here &  
there - mostly small.  
Cotton, sorghum, some  
wheat. Some fruit trees -  
mostly apples - fair small.  
Central Kansas.

At McPherson fair looking  
prairie (but with medium sized  
trees, San Antonio, sycamore,  
maple, box elder - Catalpa  
common).

Between Medora and  
Hutchinson are sand dunes,  
some tall bare & shifting -  
especially on NW. side of RR.  
They are covered, & the

sand dunes.

Hutchinson, a city of over 8000  
shows numerous shade trees. The  
Boys' Reform School located here  
has a nice young park started.  
The Arkansas river is like  
the Platte on a smaller scale.  
The banks are low, - as high -  
and the stream is broken up  
into channels between sandbars.  
The sand dunes W. & E. are probably  
from river.

Between Fairbury & Langdon  
there were few shade trees  
& there were some reddish  
gravelly material that was  
under loess in Fairbury.

Wherever a pool or swampy  
spot occurs in this dry  
plain. Cat tails, sedges, &  
aquatic plants generally appear.  
The water in some of the pools  
looks pretty well, but many  
Hutchinson a deal of it

was started, & horse  
Just beyond Greenberg  
appears dune-like  
hills NW. from RB -  
not covered with vegetation  
all the way this dry  
section the plants are  
small & sparsely distributed  
in places are tufted.

When Arkalon we crossed  
the Cuyamaca river, a small  
stream with bars. There  
are sand dunes on N. side  
especially, & the country is  
desert like, with sagebrush, yucca,  
Mentzelia, etc. The white  
deposit is prominent.  
The sand dunes are partly  
covered with vegetation - mostly,  
Screw yucca, rabbit & prairie dogs  
in many places.  
The country near the river,

both sides, is rougher for  
some distance, - but sand dunes  
are noticeably on N. side.  
Mirage appeared most of  
the day.

Beyond Optima crossed  
N. fork of Canadian. Country  
again rougher, & somewhat  
dune-like, or butte-like on  
N. side. Desert.

Valley green. Plain gray.  
Beyond Salinas, Tex  
saw them antelope.  
At Sand Springs  
and from there on were  
numerous sand hills & ridges.  
Partly covered with vegetation  
& partly shifting & showing  
wind ripples. Some are  
sharp. The vegetation is  
everywhere tufted.  
We crossed The Canadian  
a little beyond Logan.  
The river has a very narrow



deep gorge, cut in rock,  
the water appeared only  
in narrow channels, & a  
small Platte, - the bed  
of valley being sand.  
Sandbars extend from  
bluff to bluff with little  
interruption.

Aug. 29 - Sat.  
Awakened at Temporal.  
From there on we traveled  
through desert - sage brush, sand,  
some yucca, etc.  
Mountains low to east of us  
rather near, - to west higher  
range, - distant.  
Occasionally a shack or  
even house & wind mill &  
then a few small trees, etc.  
At Tularosa there is a  
short row of Lombardy poplars.  
At Alamogordo there is a nice  
park, blue grass, clover, etc.  
Trees mostly cottonwoods, some  
Lombardias - a few by there  
is some corn, rather scant, - but  
what there is looks well.  
Curious - on the east side  
of track a nice fresh looking  
park & a thriving grove, & on west  
side a sage-bush cover desert  
of which I took two pictures - 13 & 14.

Vegetation varies. Below  
Alamogordo there are places  
where yuccas come in  
thick, & again sage-brush,  
etc.

Mesquits are near Alamogordo.  
All around Escondido is  
a great Yucca forest,  
with sage-brush, a few  
mesquits, a bunch grass, etc.  
Numerous large hawks fly  
over plain.

Spent an hour at Juncos in  
Mexico and in afternoon went  
up toward the Sierras where  
there are desert conditions.

The Rio Grande has a  
current here, & below may  
be crossed dry, about

At 8 P.M. took So. Pacific  
for Alpine, which we reached  
at 5<sup>10</sup> next morning

Aug. 30 - Sunday.  
Stopped at Granada hotel,

Drove in forenoon to Mts. So.

& collected many plants.

In afternoon repeated the  
drive with renewed success.  
Left at 10<sup>18</sup> PM & reached El Paso

at 7 AM. Aug. 31, Mon.  
Got a room at  
the New Commercial for changing  
drives, etc. Sent one basket  
home, changed drives, and  
plants in press.

Left at 8<sup>00</sup> PM. for  
Alamogordo which we  
reached at about 10<sup>35</sup> PM.  
Put up at Alamogordo  
Hotel, - room 25



Sep. 1 - Tuesday.

Changed trains & P.M. went out over desert eastward to foot of mountains, - about 4 miles away.

Collected a lot of plants, Yucca, Cactus, Ferns, etc. In evening, pressed plants.

Sep. 2 - Wednesday.

Changed trains early.

We left at 8:30 AM. for Cloudcroft. A delightful ride through splendid mountain scenery. Prof. MacG. pronounced it finest in America.

Reached Cloudcroft at about noon - delayed.

Put up at Virginia Hotel, - 1.50 per day. Only hotel now open. The Cloudcroft Lodge, - the small place, -

was already closed. The "season" is from June 1 to Sep. 1.

Collected plants P.M. Also mails.

Sep. 3 - Thursday.

Philip and I walked down the RR. canon to Highrolls. I collected many plants, - Yucca, etc.

Reached Alamogordo at 8:30 P.M., - about 2 hrs. late. Put plants away.

Sep. 4 - Friday

Pressed plants, etc. early.

Toward evening went out to wet land. Found Yucca, etc.

Sep. 5 - Saturday  
 Packed early.  
 Went to Highrolls, & walked  
 down Box Canyon. A rough,  
 picturesque region.  
 And fair success with plants  
 & snails. Walked into  
 Alamogordo.

Packed & left at about  
 1 AM for the north.  
 Prof. March & Philby were  
 at Desert all day, were  
 on train.

The Alamogordo Hotel is  
 managed by Mr. Arnold,  
 a Milwaukeean whose  
 daughter-in-law has a sister  
 who is sister-in-law to  
 J. C. Kaul of Milwaukee.

Sep. 6 - Sunday  
 Awoke a couple of stations  
 below Santa Rosa.  
 The upper part of the desert  
 is now true-conifer, mostly  
 Cedar & some Pinus. It  
 extends to a little beyond  
 Santa Rosa. Northwest the  
 desert is grass-covered &  
 is like the great plains.  
 In view Santa Rosa are  
 mesas, - no real mountains.  
 There is some of red rock  
 to S.E. - especially on  
 San the big mesa which  
 is far north as N. of  
 Boulder, & Kas.



1903

Sep. 7

From Topeka to Kansas City. The  
 R.R. runs along N. side  
 of Kansas river. There  
 are bluffs on the N.  
 side - with loess -  
 At Kansas City the whole  
 Miss. valley was filled  
 with a fine dust. The  
 wind was only moderate, &  
 nearly one could see  
 no dust in the air, but  
 at a little distance everything  
 was hazy, & finally  
 disappeared in a cloud.  
 On the north side of  
 the Missouri river are  
 sand bars with slight  
 sandstone terraces, where  
 vegetation took hold.  
 The Kansas is also a  
 sand bar stream, but  
 near Topeka not  
 so bad as others.

20

Nov. 18. Hack	.25
Breakfast. Columbus Jr.	.50
Nov. 18 Meals 50 + 70	1.20
Nov. 19 Meals 50 + 50 + 55	1.55
Sleeper to Alamo	2.50
Nov. 20 Breakfast at Santa Rosa	.50
Lunch 35, Pies 5, Cup 5, Shoes 40, Carrot 10	.95
Nov. 21 Lunch 50, Wine 5	
Nov. 22 Breakfast & lunch 1.00, Paper 1.05	
Nov. 23 Breakfast & lunch 65	
Nov. 24 Hotel 6.00	
El Paso. Plates 55, lunch 30, Carfare 10, Haircut 50	
Cards 25, stamps 15, shoes 30, Parcels 20	
Lunch 50, paper 5, Supplies 35	
McPherson - Hotel 1.00, lunch 25	
Salina - paper 5, dinner 25	
Kansas City - lunch 30, car 5	
Car to Loring 40, to Lawrence 20	
Fare to St. Jo, 1.35	
Fare to Des Moines 4.75	
Room & board 1.00	
Lunch 20, papers 10, check 10	.30
Borrowed 72 from B. B. B. at 8.00	

Nov. 21 1903

Left home Wednesday at 1.48 AM (or rather about 2.00), Nov. 18 - 1903  
 Waited at West Liberty until 8<sup>30</sup> AM and at Columbus Jr. until 10<sup>30</sup> AM.  
 Round trip to El Paso \$31.50.  
 The Kansas City & El Paso train consists of 13 coaches and was very slow.  
 Left Kansas City about 3 AM. Nov. 19., & kept losing time. At Bucklin, Kas. the train was divided, the sleepers being run through, and the rest of train forming the local. We should have left Bucklin at 10<sup>30</sup> AM, but really left at 5.30 + 5 PM, 7 hrs. and 15 min. behind time.  
 The train was loaded with tourists, & the worst sleepers were abundantly tenanted by invalids.



We were also delayed by a freight wreck.

We were due at Meade at 11:55 AM. but left there at 7:32 PM, or 7 hrs. and 37 minutes behind time.

Due at Arkanon at 1 PM, reached it at 8:35 PM. (7<sup>35</sup> hrs. late)

Engine broke down at night.

Result: Left Santa Rosa at 8:48 AM. instead of 11:20 PM, last night, - just 9 hrs. & 8 min. late. And the two sections are again joined! This is the "saving" of 3 or 4 hrs. time! Was there ever such a sell?!

Saw Nut Pine in rather rough rocky region below Pintado. Also Red Cedar, shrubby oaks, Cholla, very strong Opuntia etc. The cholla look dull & dead, but have fruit. Closer inspection shows them to be green, but dull. Left Marino at 11:06 AM. 9 hrs. & 46 min. behind.

Near Marino there is a lot of Red Cedar with considerable nut pine. At Trincheras 9 hrs. 48 min. late at Torrence 9 " 47 " " Below Torrence a lot of red cedar & nut pine - in narrow part of valley. The slopes are also covered.

I should say this was about same horizon as above High Rollers to Wooten - The cedars are covered with mistletoe.

24

The highest point is  
6666 ft above the sea.

Alamogordo = 4312 ft.

El Paso - 3700 ft.

at Corona 9 hrs. 48 min. later

at Salinas 10 hrs. 3 min. "

at Tecolote 10 " 7 " "

at Ancho 10 " 3 " "

at Coyote 9 " 54 " "

at Carrizosa 9 " 45 " "

at Oscura 9 " 35 " "

Reached Alamogordo at 3:30 P.M.

Put up at Alamogordo Hotel.

Saw Mr. Banner & Mr.

E. J. Dedman of the R.R. Got

transportation to Cloudcroft &

arranged with Mr. Banner's

brother-in-law to go out two days.

Saturday, Nov. 21 train from H. was 20 hrs. later

Sunday " 22 " " " 4:45 " "

Monday " 23 " " " 1 " "

1 hr + 35 min. added to  
the end of time; as train is now due  
at Alamogordo at 4:30 AM. Last  
El Paso 6:55 PM.

25

Nov. 21 Saturday

The streets of Alamogordo are  
lined with cottonwoods 5 to 6 in  
in diam. & 15 to 25 ft. high.  
They are planted along the  
irrigating ditches which I  
ran down on both sides of  
each street.

The leaves of the cottonwood have  
nearly all turned yellow, but  
most of them are still on the  
trees.

White sands show sandstone  
formation clearly & the surface  
is rippled everywhere.

Took a number of pictures. In one  
plate taken in view of Yucca  
(narrow leaf - see fruit & lvs.) &  
another picture of yellow composite  
shrub - on which I also found

fungus (Pyrenopeziza?) white sand  
the most common lower plants on  
the narrow leaf Yucca (see fruit &  
leaves), the yellow composite shrub



(See fruit & Pyrene.) a gray  
woody bush, the winter  
Chamaedorea shrub, others &  
in more protected places the  
Yucca grows, & other  
small plants (few).

Traces roots of various low  
Yucca, esp. by line, fr  
2-5 ft. No end.

Was told that a white rattlesnake had been  
found on the white sands. - Albino -  
The sands are shifting eastward.  
Winds are not very heavy, at least  
strong winds are not frequent.  
Skeletons of people murdered & buried  
in the white sands are occasionally  
uncovered by the wind.

Some very light hominid bones have  
also been found there. ~~also~~

My driver, Mr. Eugene De Mier, Mr.  
R. B. Bauman's brother-in-law has lived in the  
territory 18 yrs. & is full of plain lore.

Met Judge Baker at hotel.  
Wanted to be remembered to Prof.  
Currier, also Swisher, Miss Reilly.

<sup>Sunday</sup>  
Nov. 22. Drove E. to mountain.

Took pictures etc. The fine-  
leaved (dark) tree-like shrub  
with spiny & short scaly leaves  
& little berries <sup>red wood</sup> in some  
dense hollow with very large  
Opuntia which struck me as  
new. (See wood, berries & painted  
spec. of shrub)

Saw a Paisano skulking under  
bush up the cañon.  
Went up Adams cañon about  
three miles. Collected a willow(?)  
oak, etc. etc.

Returned about 4:30 PM. Packed &  
wrote letters.

Found corner of Pinus ponderosa <sup>and pine</sup> and  
Abies douglasii that has been  
washed down the mountain, but the  
fine drip showed no signs of shells.

Nov. 23-Monday. Got up early & packed. Left for Cloudcroft at 8:30 AM.

Arrived at Cloudcroft at 12:20. Took pictures enway, & at Cloudcroft.

1. The large central tree in open - is *Abies douglasii*.

The very large tree only partly in - is *Abies concolor*. The smaller one beside it is *Pinus strobus*.

One with house is *Pinus ponderosa* (several).

The fine forest is *Pinus ponderosa* & *Abies douglasii*. *Abies concolor* with <sup>some white pine</sup> *Bark with cracks far apart* in *Pinus ponderosa*.

Smaller bark = white pine.

Very large bluish-topped tree beyond RR cut = *Abies douglasii*.

Ponderosa tree - water tank = *Abies douglasii*.

Very rough bark - trunk widening below = *Abies douglasii*.

Those with track are certainly *Abies douglasii*.

No. 1 in *Abies concolor*. The bark of *A. concolor* is not so rough.

Mr. <sup>E. J.</sup> Dedman is one of the Cloudcroft residents. The others are:

A. J. King, E. M. Harter -  
~~W. H. Long~~, J. A. Eddy.

The pictures enway up were taken between Highrolls & Wooten. They were mostly snap shots. - The winters are *Pinus* - (*Pinus*), *Juniperus* *proserpinacifolia* & *Juniperus* (*virginiana*?). - The water tank & engine, train (log cars) was taken at Wooten.

I found *Habix* most common under fallen gnawing asp, of which quite a lot grows just below Cloudcroft. The log train came in at 3:40. The logs were all *Pinus ponderosa*. Train left Cloudcroft at 4 PM.



At Bailey's Camp the mountain sides are almost bare, but stumps show that much timber was cut.

In some places above fires destroyed much.

Reached Alamogordo at 6:45 PM, - delayed a little by a derailed log car on our train.

The day was beautiful. (compared to good weather as other days were dead.)

Nov. 24. Left Alamogordo at 6:45 AM, 2<sup>15</sup> hrs. late. Reached El Paso at 9 AM.

Took pictures at the Stanton & cars at the Stanton & Tr bridge. View down Stanton str. & Franklin Mts.

Left El Paso Nov. 24 at 6:55 PM, - in 1903.

Reached Santa Rosa at 6:22 AM, Nov. 25 - 1903.

This was Mountain time. Left Santa Rosa at 7:35 AM. Actual time

Nov. 25 Wednesday. Reached McPherson, Kas. a little after midnight - about 1 AM.

Nov. 26 Took W.P. train for Salina at 8:25 AM. Reached Salina about 10 AM.

Left for Wilson at 5:30 PM. Train 50 min. late. Reached Wilson, Kas. on main line of W.P., at PM.

St. Joseph, Mo. Nov. 29-1903

- I. Exposure just above Francis in  
CB & Q deposit is at the end  
of a ridge lower than the  
high bluffs back from river.  
It shows the sand, somewhat gritty,  
light yellow color characteristic  
of the loess, & shows other character-  
istics. Laminules are plentiful, some  
rounded, some following roots &  
slender, & some in lines &  
some of these sets of  
bands follows what  
appears to be a surface  
produced by sliding.

Some nodules follow line.

Iron tubules are rather few &  
nearly all vertical.

The nodules & shells were taken  
in a bank extending vertically  
12 ft. above RR. which is here about  
18 or 20 ft. above the river.

shells marked no R

Shells & nodules extend up as high  
as I can see.  
Few are found lower down & a  
good many are crushed as if there  
had been drifting.

The great sandbars opposite  
show clouds of drifting sand &  
wind is moderate.

In one place where a face (slipping)  
parallel to face of bank scales off  
lime plates extend up & down  
parallel with face in what way on  
old surface.

Further N. The bank becomes  
18-20 ft high & a part of  
unbroken shell band runs  
up so that I got a <sup>marked</sup> L.  
box of shells (tin) about 12  
ft above RR. There are plenty  
of nodules in this part.

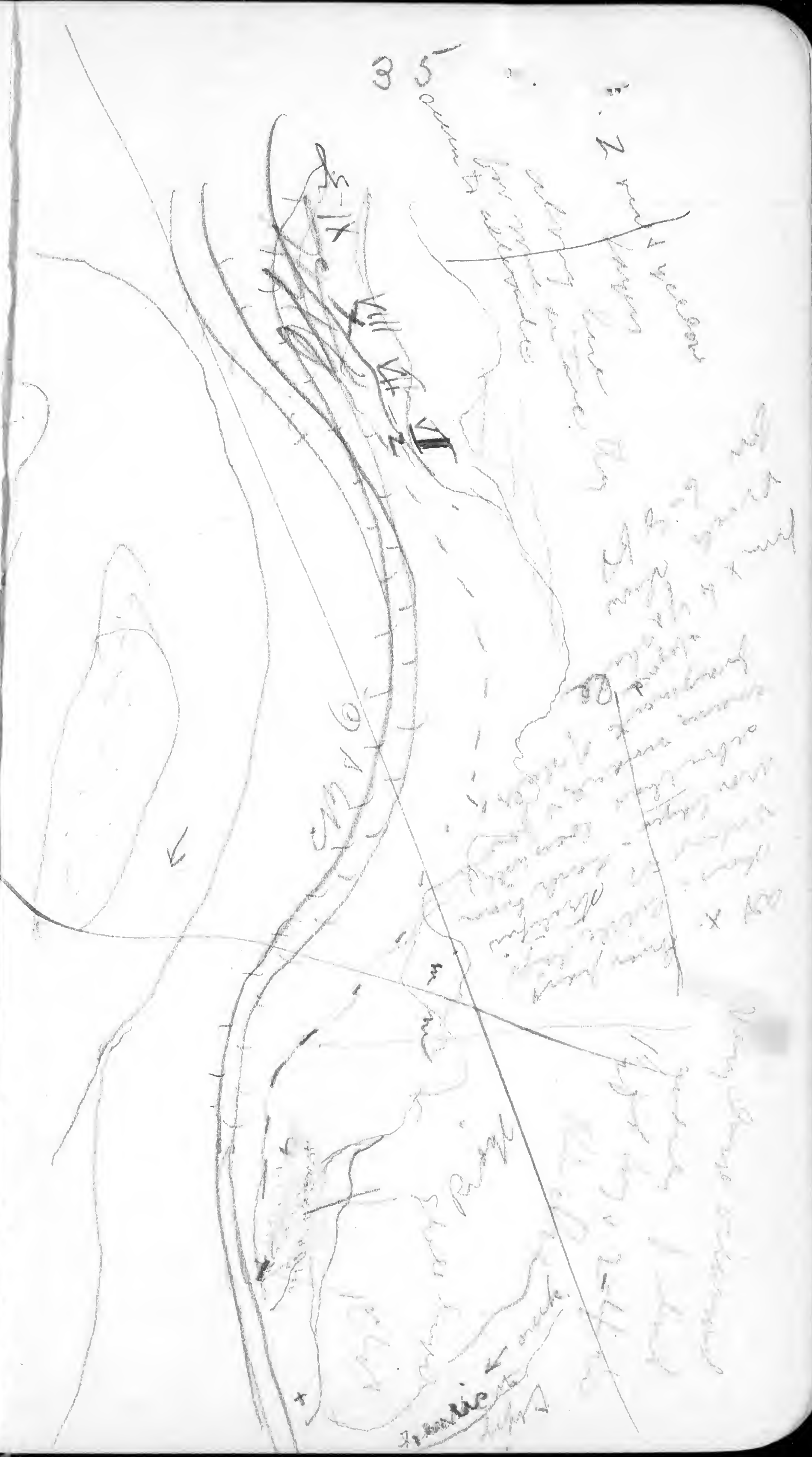
cut - I

— sand layer —

RR

1<sup>st</sup> fault  
line





In places, especially at y,  
the loess looks quite red  
but just west to it, on west  
ridge or bluff, loess is yellow.  
Probably 25-35 ft deep on  
these bluffs.

The upper part is vertical,  
with talus below as usual.  
The lower part also shows  
that crumbly "granular"  
structure pretty generally.  
Rocks & plants very abundant  
everywhere.

Soft loess to be seen  
Some places there is a  
rocky - especially at y,  
but most are large  
small boulders (few) mostly  
dark (granite)

One dark reddish boulder  
(not very quartzite?) measured  
over 4 ft in diam.

## VII.

In a bluff below X. The red  
& yellow loess occupies the position



The line is quite sharp  
The lower part contains more  
irregular line nodules & the  
yellow some rounded nodules &  
a few fossils.

See samples of clay  
Red & yellow

See shales from yellow

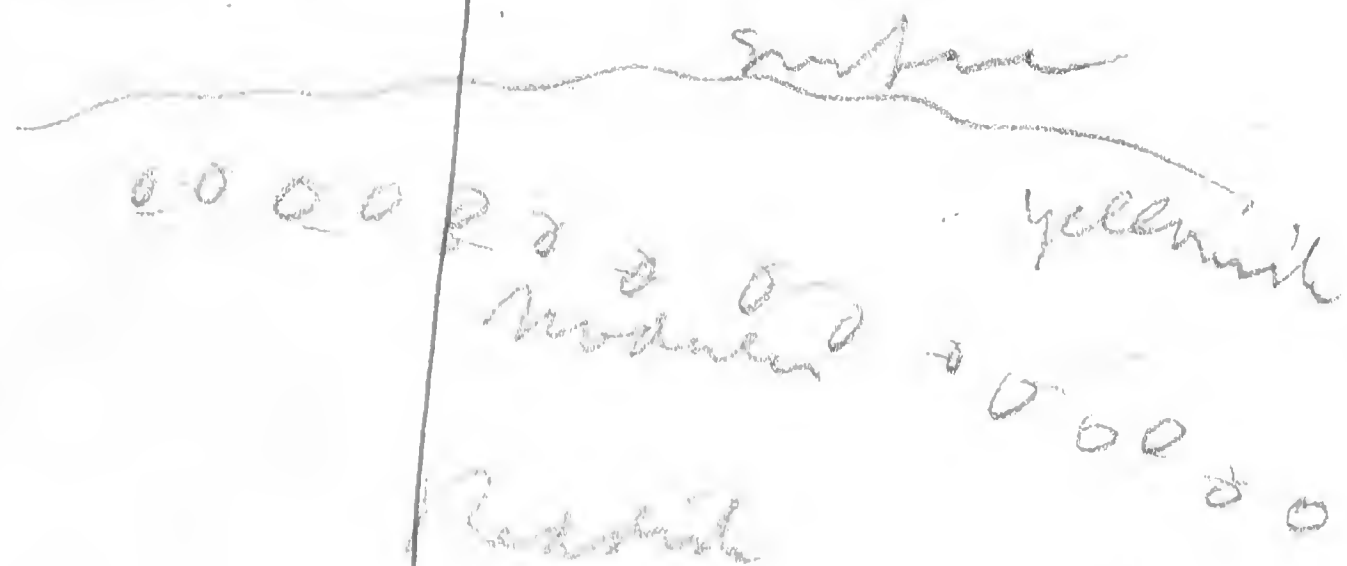
The fossils from the yellow  
loess were taken at a point  
about 15 to 16 ft above RR  
track.

Some portion of the bluff shows  
only red loess, other only  
yellow & these have fossils.



V.

Below 2 on one bluff from  
reddish brown underneath +  
layer of large nodules, &  
then a fine, yellowish  
loam.



The difference is not so  
marked as in preceding  
cases.

Some are fairly & some of this  
in the great bluish loam.  
A closer look shows no  
difference between upper &  
lower part of loam & it is  
all probably to be covered  
with red loam. but is  
lighter than 1<sup>st</sup> can.

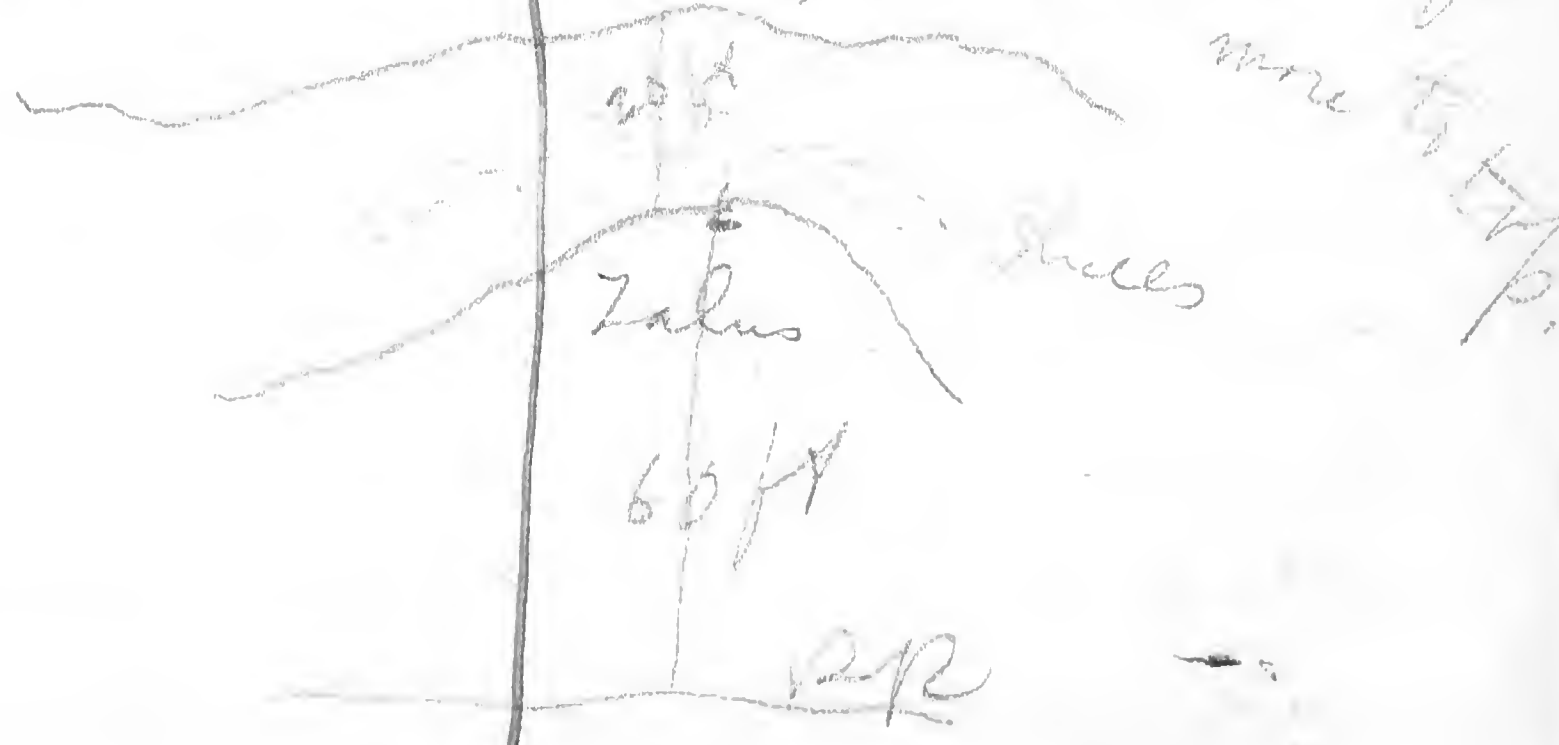
The high bluff at m  
are yellow (light) (not blue)  
loam, (see sample m) but  
they contain a little gravel  
& round nodules. (See spec.)

The upper part is vertical for  
18 or 20 ft & then slopes  
irregularly along a talus.

The shells are scattered through  
a layer reaching to within a  
few feet of top & nearly to  
bottom of vertical part.

Any through 10 or 15 ft - but  
there is no sharply  
defined shell layer.

It is 60 ft (by barom.) from RR  
track to shells, & about 20 ft  
more to top.



The main part of this bluff along lower part of crescent highway, is like at m. & contains more or less fossils. I got the fossils at m either by digging or a freshly exposed vertical surface. <sup>cut III</sup> A little below m - the bluff shows light yellow loess in vertical part, & fragments in talus stone shells, though I could not walk back. Below is very abrupt talus of reddish (iron-formation as far as I saw) loess which grades below into fine sand, - 20 ft or more of it.

## cut II.

At an good old curve, the red loess extends to bottom of cut - no sand, & the upper loess, 20 ft or more shows vertical face &

<sup>small nodules</sup> fossils exposed. Could not reach them.

Below Francis str the bluffs recede, & indeed there is just a gradual slope away back east, but a couple of miles below St. Joe. I could again see headlands along the river.

The same line of head St. Joe must be at least 3 mi. long, & over a mile wide in widest place & all down slopes of head & I am sure some of the wind blew from the west & a little N.W. & the dust would be carried in line with the headland below the city. If the wind was from the SW the dust would be kept



up along bluff which  
 I worked.  
 The stream here is divided  
 into several channels,  
 the main one being close  
 to Francis str. depot.  
 of the C.B. & Q. R.R.

It appears to me as if there  
 had been a sand dune formation  
 along the river above Francis str.  
 and that upon this a deposit of  
 dust (red loess) was formed while  
 conditions were still unfavorable  
 to good mesophytic vegetation;  
 that later this vegetation got  
 a hold, & finer loess was  
 deposited, ~~erecting~~ covering  
 the small shells which now  
 protrude. In most places  
 along the face of the bluffs  
 there is no very sharp line  
 of demarcation between  
 the red & yellow loess,

but in the one instance  
 specially cited & figured  
 this line was very sharp.  
 This would suggest that  
 for the most part the change  
 from xerophytic to mesophytic  
 vegetation was gradual,  
 but occasionally abrupt.

Occasionally the shells in  
 "shell stratum" (here not definite)  
 are crushed, as if there had  
 been vertical "slipping".

The vegetation on the hills  
 is tufted, & of the same general  
 character (& species!) as  
 at Hamburg & at  
 Council Bluffs.

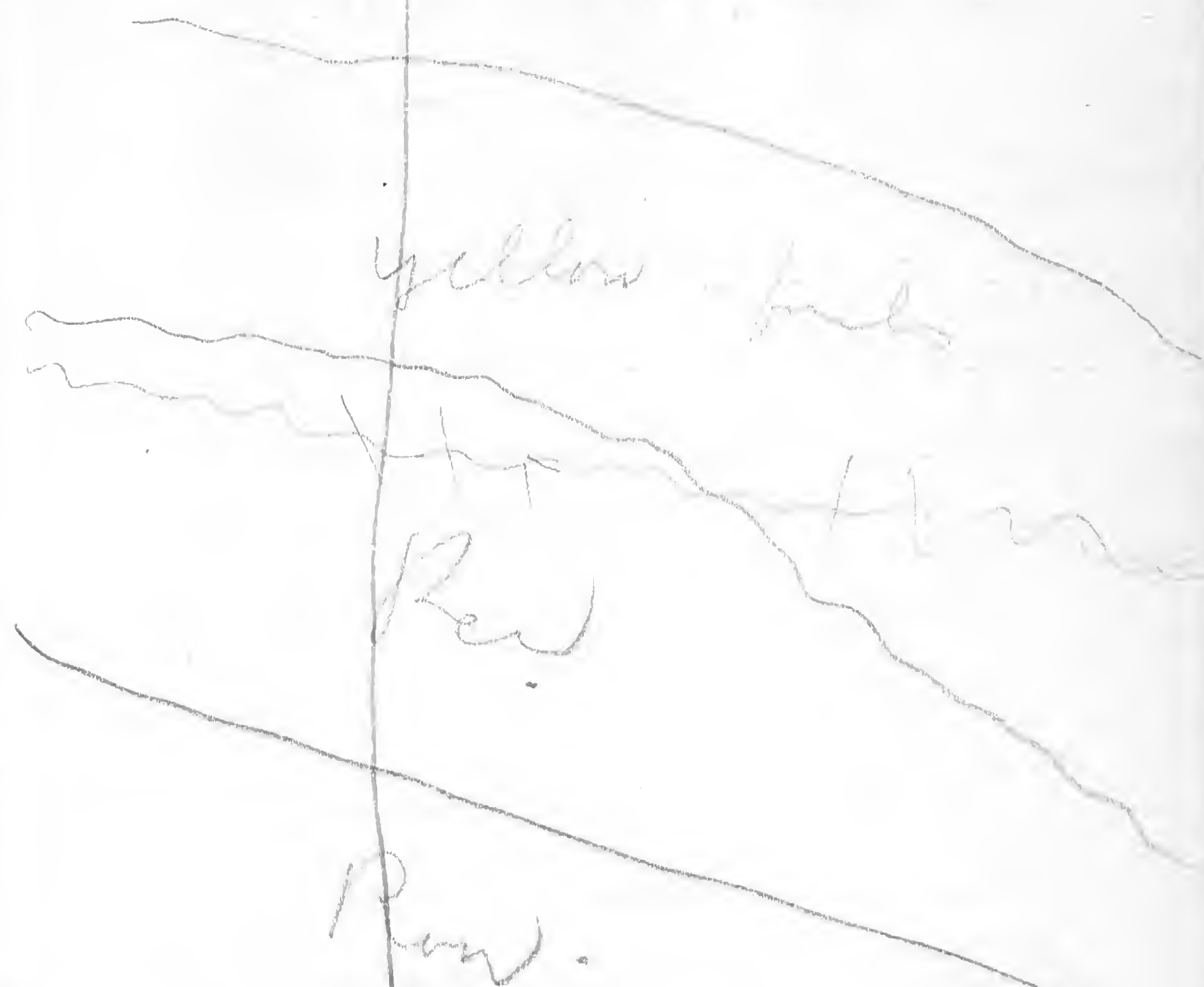
44 St. J. Mo  
cut where badre str.

crosses my ridge.  
Road 70 ft. above  
C. & W. tracks,  
Banks stand 25 ft. higher.  
The yellow loess takes up  
all of cut, which is about  
 $\frac{1}{2}$  block long. It contains rather  
shells & rounded nodules —  
just like my higher shell  
layers along river.

XI Down on the slope — a  
block east (75 yds or more)  
at about 30 ft. above C. & W.  
tracks there is yellow  
loess even now loess — the  
further with boulders & round  
nodules — the latter

The great western  
tracks are probably  
5 or 10 ft higher  
than C & W tracks.  
This is a guess, but they are higher

45  
N. mile of  
badre str.



No sharp line between

This cut is just W. of  
Dewey Ave. which  
runs at foot of it

Took Obs. W. ER for Des Moines  
at 2:30 PM. Nov. 27-1903



along C. & W. RR.  
saw bridge piers - low  
hill. light red. <sup>with</sup>  
numerous exposures <sup>of</sup>  
down however, along  
this RR.

There is rough country  
along creek which RR  
follows.

As we approached  
Savannah I could see  
drift in the small cuts  
(there are no large ones)  
the country was less  
rough, & there was  
little loss on top.

Savannah is 11 mi. from  
St. Joseph.

Between Savannah & Wyeth  
there are small cuts some of  
which show only drift (Kansan  
& others or thin layer of loess).  
The topography is Kansan  
& the boulders show it, too.

At & beyond Rea, Mo. I  
could get a wider view  
of country, & it is  
decidedly Kansan.  
Cut shows loess -  
one showed rather fine  
drift and a couple of  
feet of loess, with a  
dark brown band at base,  
less than a foot.

48

49



72

To & from St. Joe & Kansas City  
 Mo. Pacific - p. 238 - 69 mi.  
 Burlington R. p. 166 - 63 mi.  
 " p. 165 -  
 Chicago Great Western p. 95 - 69 mi.  
 Santa Fe - p. 189 - 31 1/2 "

Lansing  
 A. T. & St. Fe. p. 186 - 204 (p. 200)  
 34 mi. 5 mi.  
 Lve. Kansas City - an. Lansing Lve. an. Leavenworth  
 4:30 PM. 6:55 PM. 7:10 PM  
 9:45 AM. 11:30 AM. 11:45 AM

Kansas City W. Western - p. 237  
 26 mi. 5 mi.  
 Lve. Kansas City an. Lansing Lve. an. Leavenworth  
 7:45 AM.  
 4:20 PM. 5:44 PM. 6:05 PM.

Union Pacific p. 120-133  
 Lve. Lansing 5 mi. an. Leavenworth  
 5:20 PM. 5:35 PM.  
 11:40 AM. 11:57 PM.

73

225  
 30  
 156

St. Joe. & Des Moines 121  
 156 mi.  
 Chicago Gr. Western - p. 95 - 156  
 Lve. St. Joe. \* 2:23 PM an. Des Moines 9:05 PM  
 \* 2:05 AM 8:30 AM  
 Lve. Leavenworth an. St. Joseph  
 Chicago Gr. Western - p. 95. no.

Santa Fe. 20 mi.  
 Lve. Atchison { 9:50 AM.  
 { 6:45 AM an. St. Joe. { 10:35 AM.  
 { 7:35 AM  
 Lve. an. Atchison  
 33 mi. 8:20 AM. 10:20 AM.

Kan. City 234  
 In City, K.C. 323  
 507  
 M.C. Long.  
 421 Cypress St. 277  
 27  
 349

Lve. Wilson an. Kan. City  
 1:05 AM. 7:50 AM.  
 8:54 AM. 5 PM.

Lve. Galien an. Wilson  
 (500)  
 4:40 PM 7:40 PM  
 6:40 PM

74

75



Plants of Abasco

76

*Chilopsis saligna* "willow"  
*Pinus edulis* Eng. - Pinon  
 " *ponderosa* Dougl. Yellow Pine  
 " *cembroides* Mill. White Pine  
*Pseudotsuga douglasii* Carr. Douglas Spruce  
*Juniperus pachyphloea* Torr.  
*Clematis drummondii* T. & G.  
*Berberis trifoliolata* Moench  
*Argemone platyceras* L. & O.  
 " *mexicana* L.  
*Silene laciniata* Cav. var. *greggii*  
*Larrea mexicana* Moench & Cuatrecasas  
*Koeberlinia spinosa* Zucc. <sup>very spiny</sup> Junco  
 or *Adolphia infesta*  
*Munzadia speciosa* Eng. Mex. Buckeye  
*Acer grandidentatum* Nutt.  
*Robinia neomexicana* Gray  
*Prosopis juliflora* DC. Mesquite  
*Prunus salicifolia* HBK.?  
*Cercocarpus breviflorus* Nutt. <sup>very hard</sup>  
*Rosa foliolosa*  
*Cucurbita foetidissima* HBK.  
*Xanthium canadense* Willd.

77

*Mammillaria micrantha*  
*Echinocactus longispinus* ~~or *centropygia*~~  
*Opuntia arborescens* - Cholla

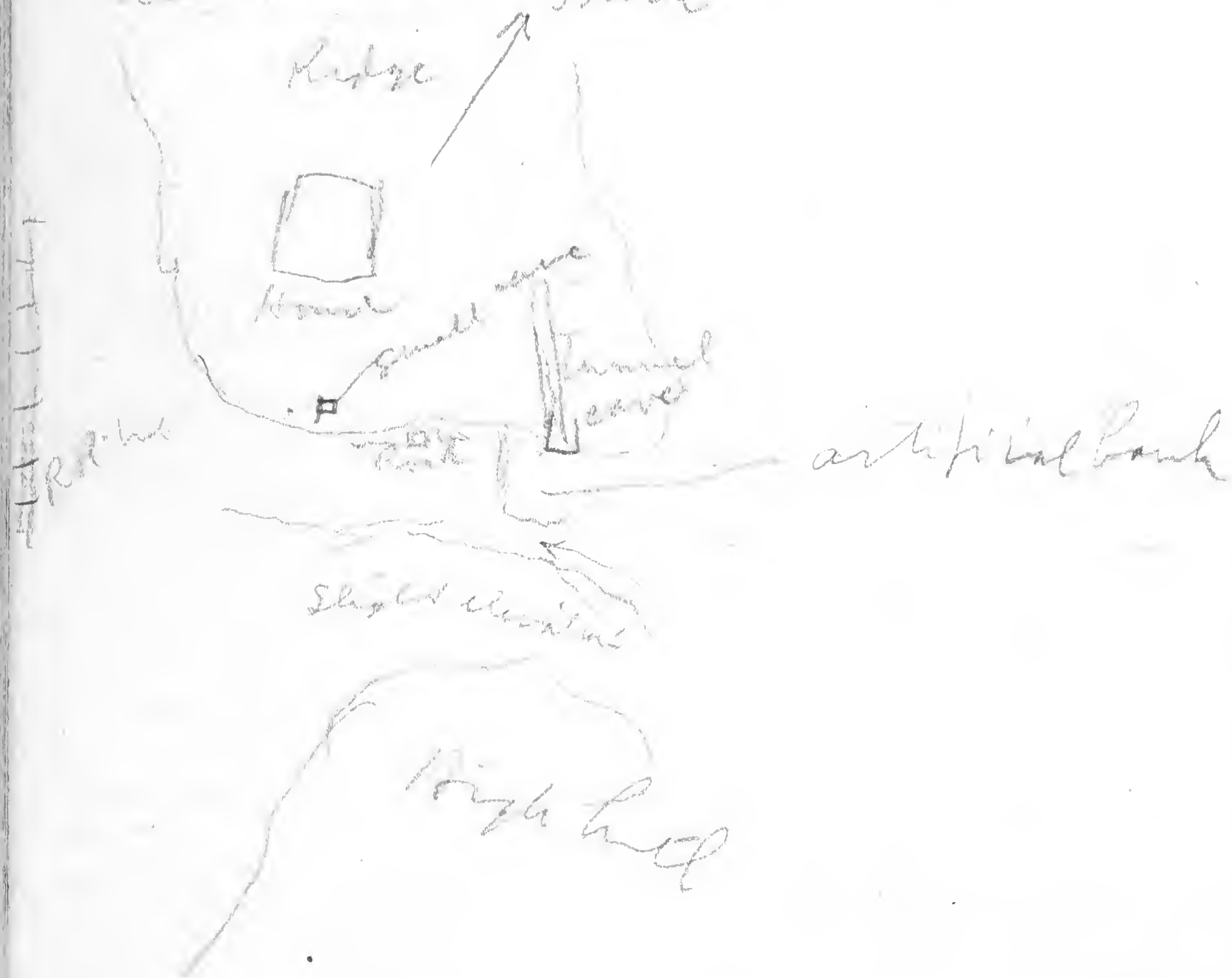
No. 9. view from house looking  
NW.

No. 10 is looking W. E. from  
platted ridge.

No. 15. view looking nearly S. cave to  
right & old small cave to left,  
just below house.

~~No. 16. view from~~ N. E.

No. 11- close view of cave & rock looking  
nearly with South



No. 12 Taken looking S. E. Cave is  
right under house.

No. 7. looking E of S. E.

" 8- " E. of south - from point  
about 100 ft. high.

River is at least a mile E  
The valley is 4 or 5 miles wide

The water in 1903 was about  
Symphonium caeruleum called  
Buck Lake by common name

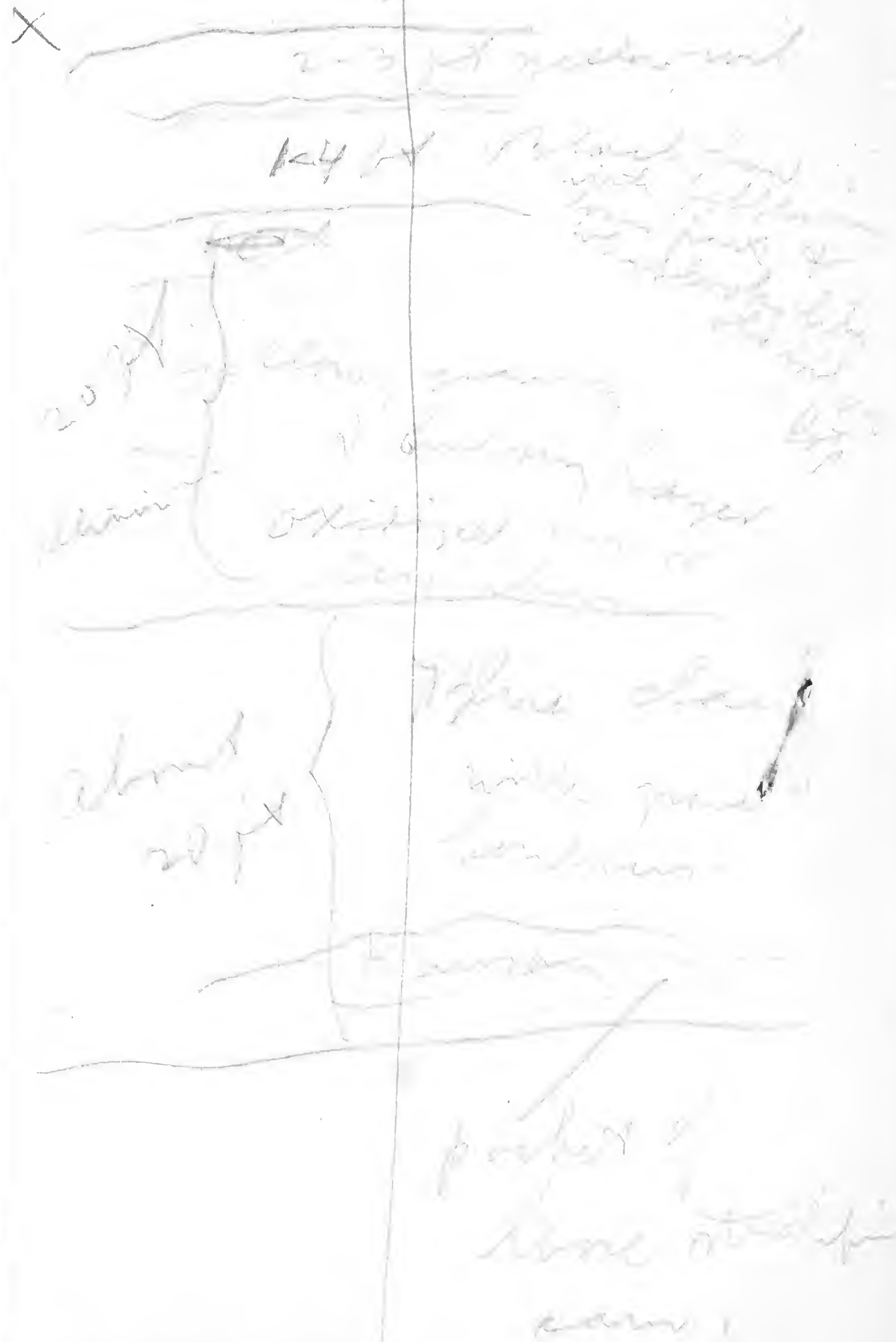
The water was nearly two  
feet over RR bridge just  
east of cave - creek.

Cave is about 75 yds from RR  
Highest point of concrete  
road S. is about 150 ft  
or more.



As to possibility of water being held & forming the silt layer in the cave - there is a low ridge or slope on the N. side of little creek, while the creek is up against side of valley. The creek cuts in here & it is probable that the barrier extends across mouth of valley. At any rate, with ridges of clay on either side, it would be very possible. There has evidently been slipping on both sides.

Wm. cutler - Oct 11/94  
 stuff 1/2 of brown etc.



X The next bluff west,  
facing Hensley Ave. is  
of especial interest.



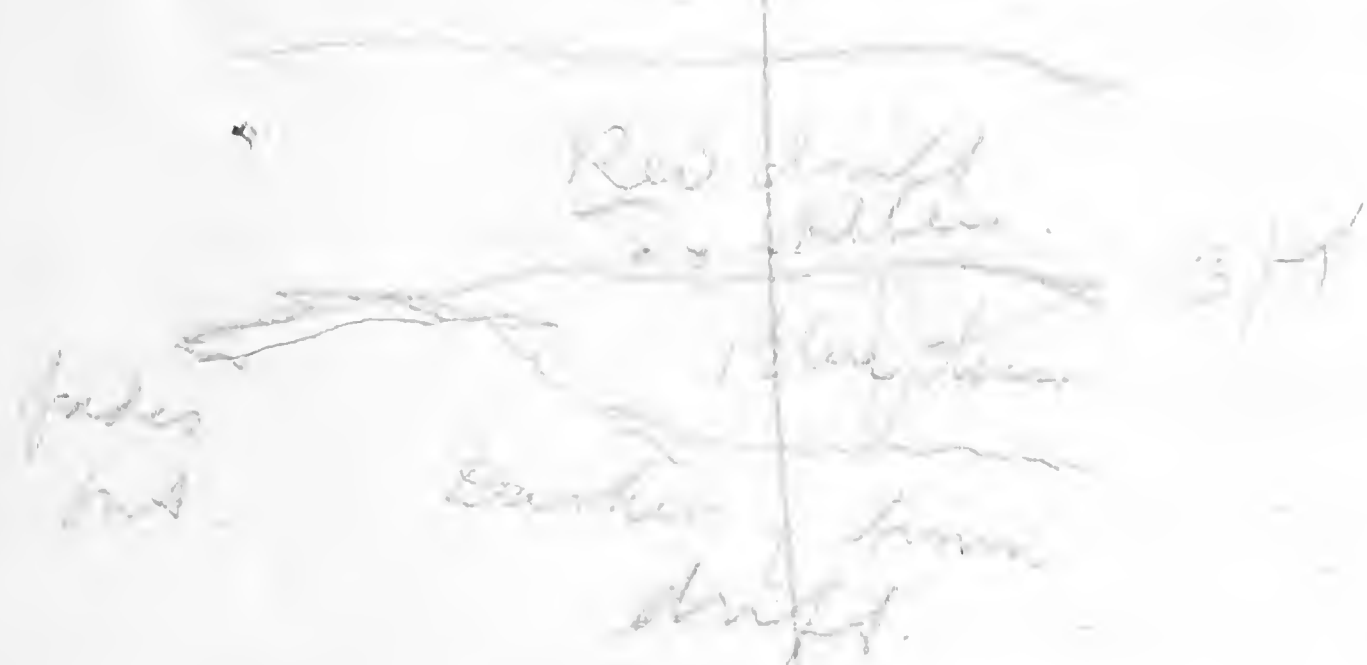
The lower part is blue (about  
3 ft. exposed) with large iron  
blotches & streaks, & the shells  
are in places in windows,  
as if banded at base of  
point. A very few pebbles  
occur here, & there are  
lumps of loess free from  
them, & where gravel &  
sand appear, it is in  
streaks. This is on a  
out of shelly. Beyond  
it the main body of the  
drift is loess. In  
one place there is a pocket  
of sand (c) & parts of this  
have a little clay. In the  
I found most of the  
shells marked (c).

The deposit (b) is brown  
heavy clay, but like  
(a) it is more like joint  
clay. There are shells in  
it, & in layers, with



pockets of sand.  
 The drift between the  
 two loaves is red with  
 iron, & contains boulders.  
 The topmost layer is  
 redder than loess, is  
 mostly sand, some  
 pebbles & gravel it  
 shades into yellow loess  
 sandy soil.

At (d) the section looks  
 like this:



The two drifts are here  
 very clearly separated  
 by loess, & on the shelf  
 (a) the loess is again below  
 2<sup>nd</sup> loess - that is - as

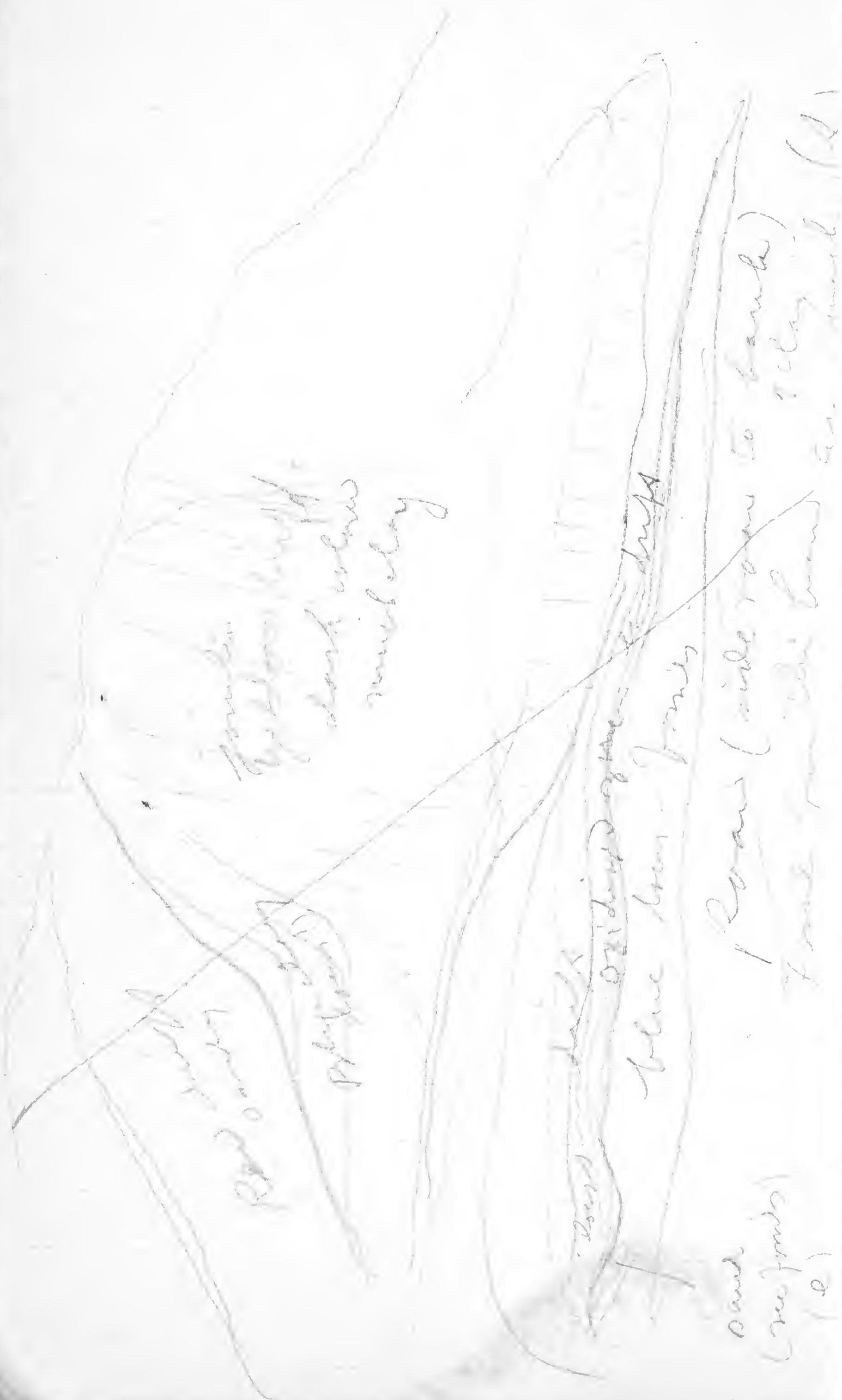
this is probably marginal  
 explanation, but it  
 appears as if there had  
 been an old Kansan  
 loess & the Illinoian loess  
 flowed over it & then  
 either another loess, or  
 loess got some elsewhere,  
 was piled on top, & then  
 loess -

The lines there are not  
 very sharp. Both  
 oxidized loess & brown

Photo -



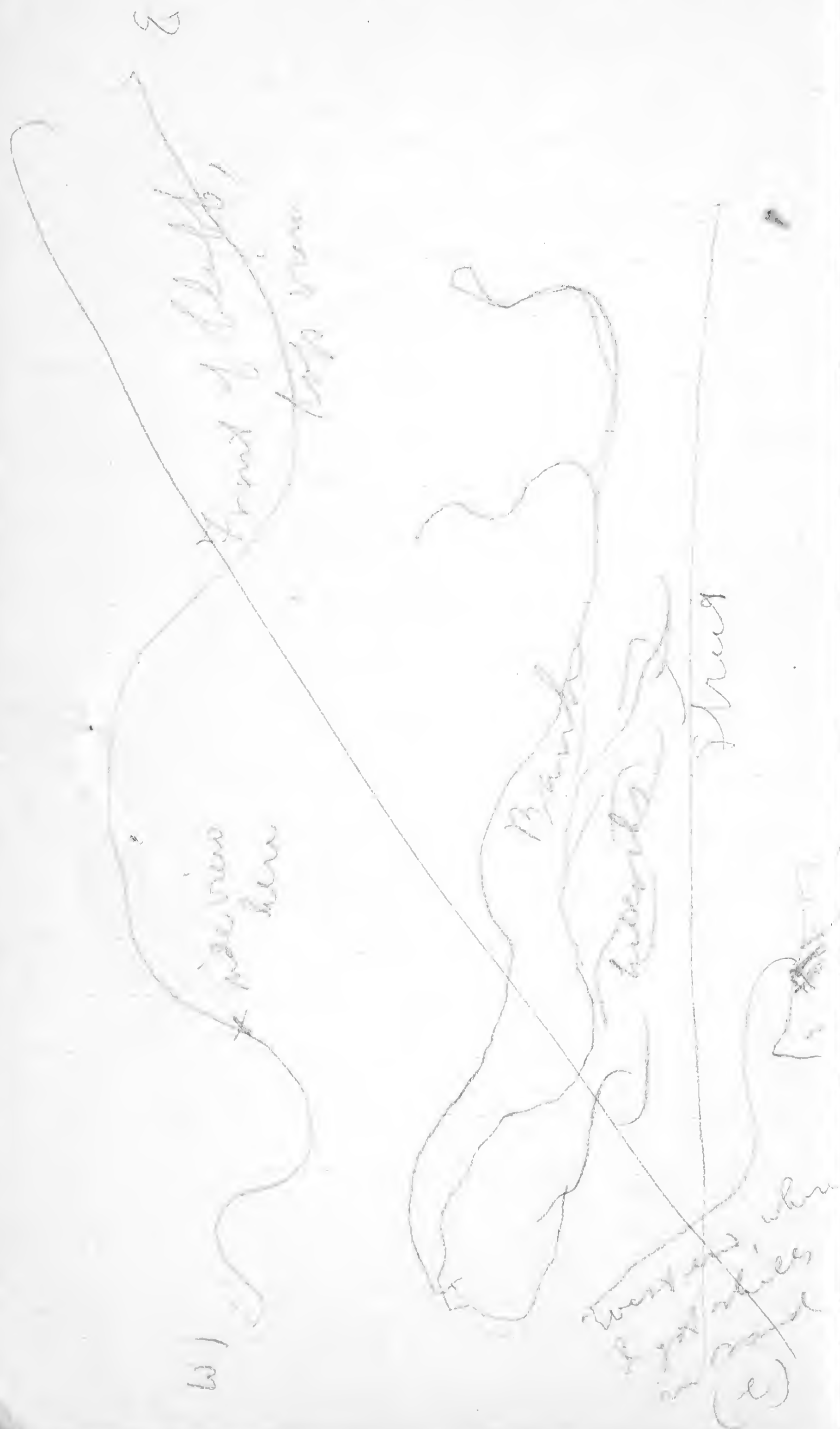
pebbles occur in the  
 loess, especially (a)



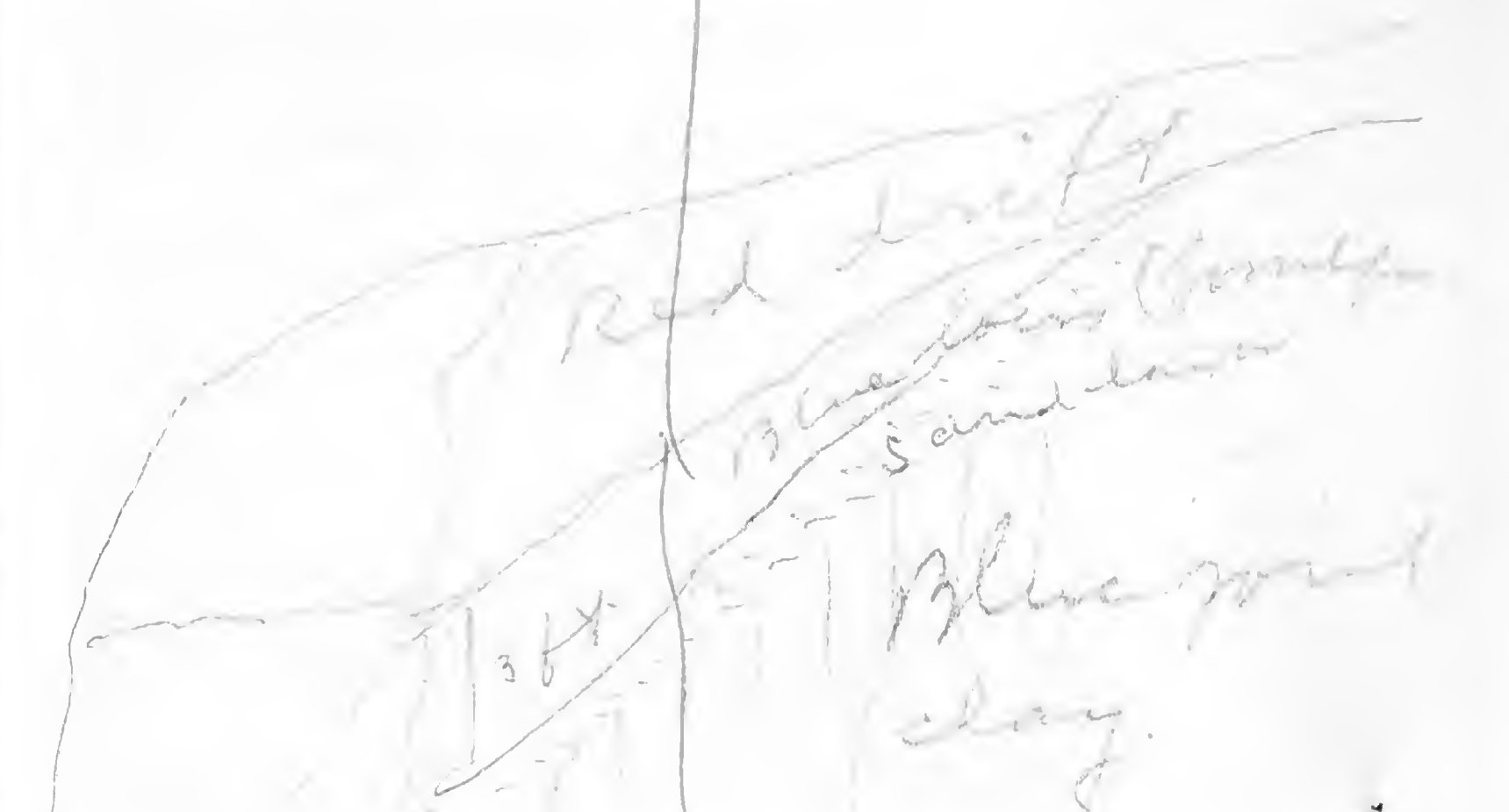
Probably (a) is same  
 as (f) all clay  
 of the grades of  
 is very well marked  
 At (f) there is a  
 curious loam-like  
 layer, rather bluish  
 yellow, but more of  
 the latter, more or  
 less stratified & tougher  
 than the former &  
 more like joint clay.  
 It looks as if it was  
 associated with water.

Took photos of (a) & (f)  
 The (a) of the  
 bed seems to consist  
 of bluish joint clay  
 with lots of iron





X - shows sand & drift below, then loess (blue fossiliferous) & then red drift.



The joint clay below looks like Kanran. The line between sand & loess is quite sharp & oblique. That between red drift & loess is quite sharp.

That these materials  
 appear down or shown  
 on train, still in a  
 brown or ruminant

Grice's Valley

Road  
 Oxidized  
 blue brown, fine

The band of heavy stuff  
 above oxidized layer  
 Q1 looking up of had  
 been overmined

oxidized  
 original  
 blue brown

The little bank  
 at the top of the  
 this original surface

Red dirt  
 blue brown  
 point of contact  
 with original surface

oxidized  
 heavy  
 Kanran layer

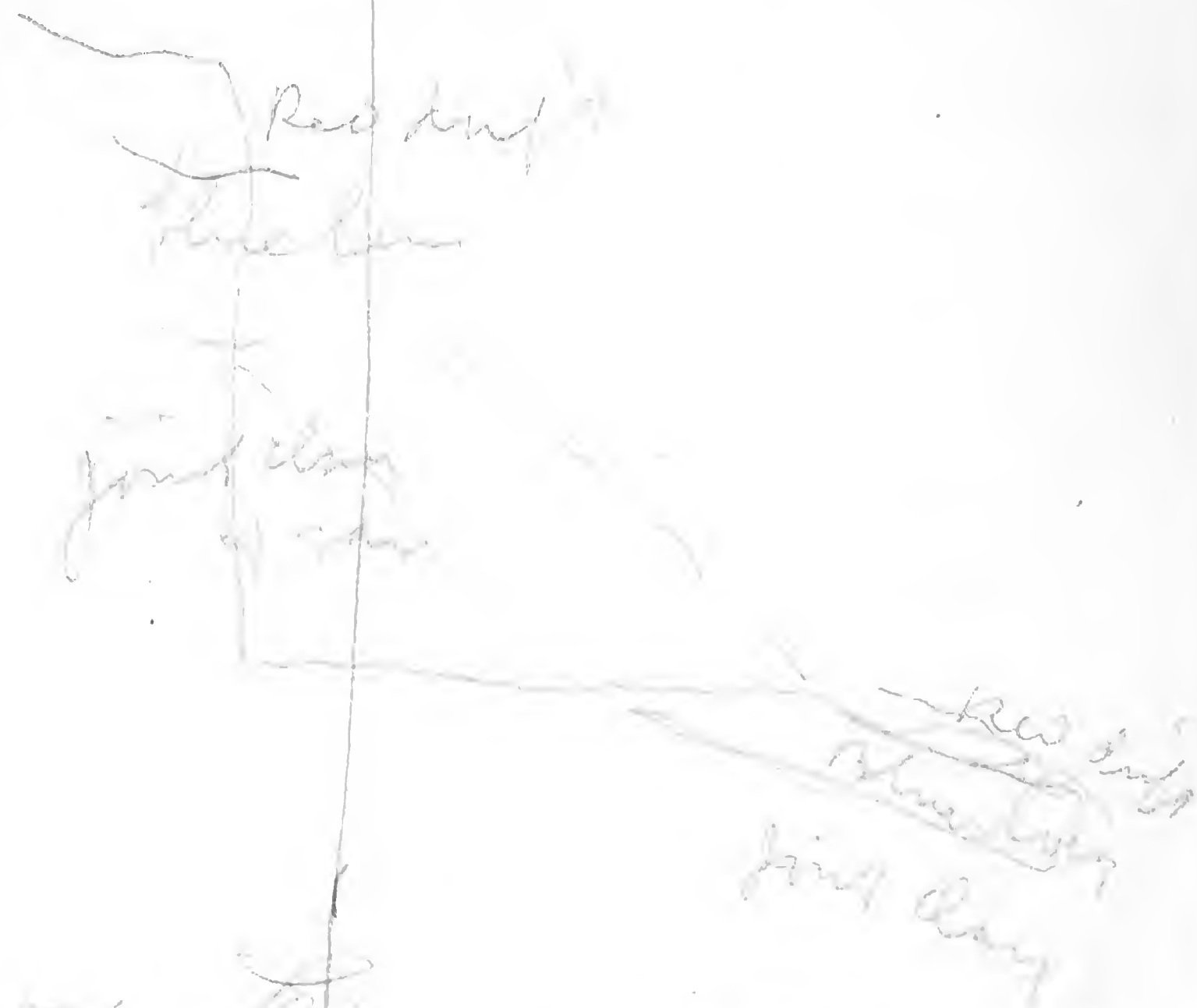
The layer yellow at  
 bottom to oxidized  
 to low down oxid.  
 belt at 3'



at (a) (b) (c) shells  
are often in layers &  
many broken - also  
many, broken.

It is evident that  
around the base was  
a layer of limestones &  
now when part

out away at E. end  
it appears as if  
there were two layers.  
The two layers  
at E. end (respectively)  
are like this  
(looking E.)



The limestones are  
especially in  
oxidized layers &  
above it & they  
are all through  
this exposure.

The sandy pockets at  
either end may have  
been sand lenses  
in the limestone.

Blue loess at (d)  
 on main section -  
 (see sketch.)  
 This is continuation  
 of layers a + b

not long - Oct. 17<sup>17</sup>  
 The bluff at (d) on (photo)  
 shows true bottom  
 drifts - loess sharp,  
 but no facets.  
 There is gravel in  
 drift below loess.  
 Ten shells higher up, +  
 true loess.

The loess loess at (d)  
 has irregular bands of  
 iron oxide + there is  
 have occasional small  
 gravel + a little sand



96

97

Road running N. through  
middle of sec. 20, Twp. 4  
Albert, Scott co.

Oct. 18 1904.

1<sup>st</sup> cut, not far N. of S.  
line sec. 20 shows only  
yellow ("brown" loam) - the  
fossils, no kintchen or white  
2<sup>nd</sup> cut on lower (middle)  
slope of a ridge - shows  
following (see photo)



Iron tubules are plentiful  
in the loam & in the  
soil beneath them and  
many lime nodules.

Drift below is yellow  
fossils. Some sec. 20 are  
see samples of yellow loam.  
Blue loam, black soil  
(Kansan) & gravel from  
drift.

The fossiliferous  
zones are more or less  
indefinite, the layers in  
places being between the  
two loams & in others  
between the loam & black  
loam soil.  
No fossils.

Stratification (see photo)



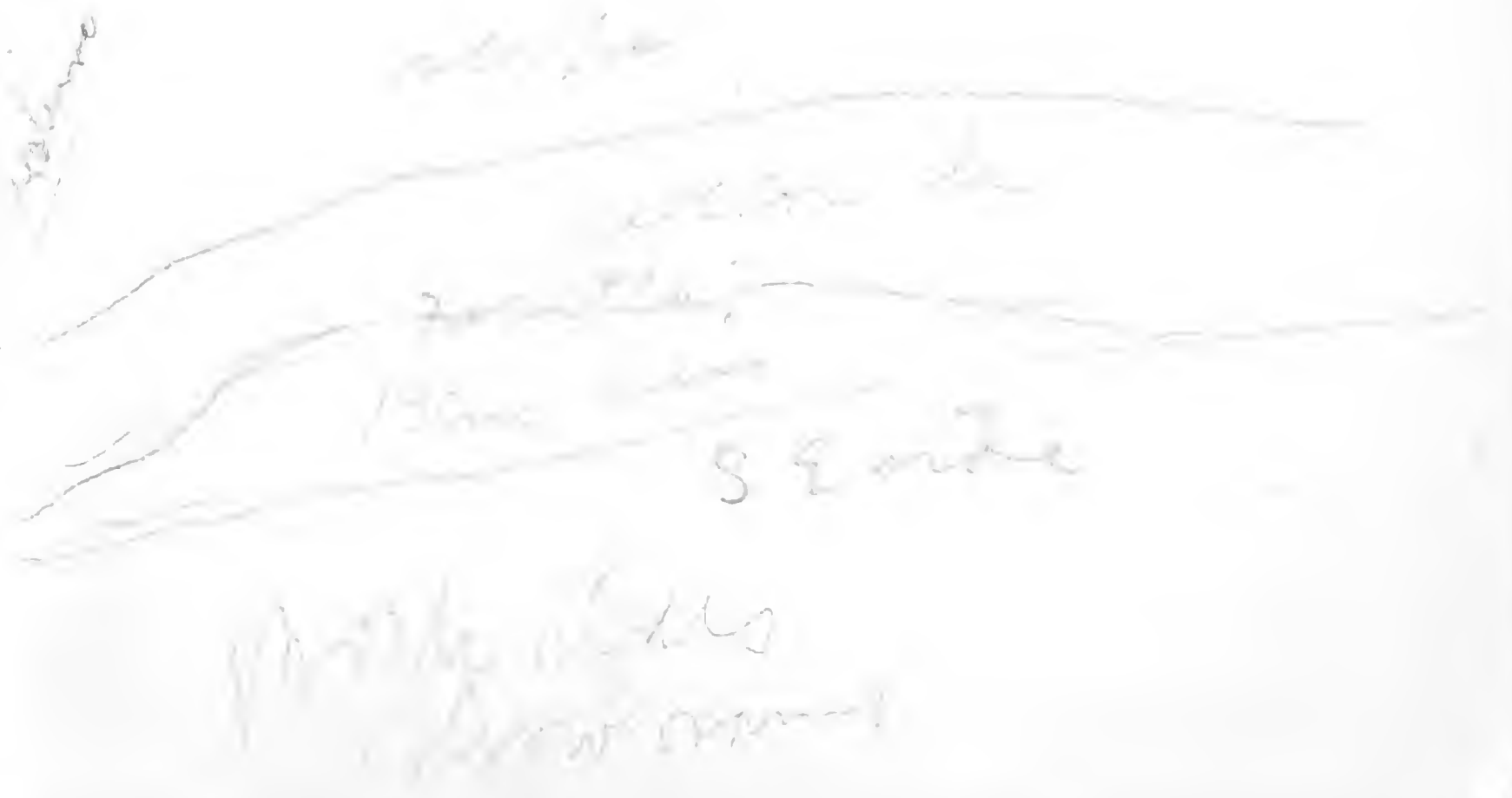




The blue, low in  
 typical, tough  
 & the yellow is below  
 a sharp line to  
 zone is mostly  
 evidence.

Second Terrace  
 border on top of  
 hill (on  
 side of descent.  
 How easy to cross than  
 I have been  
 The yellow being on  
 a sort of 4-5 ft high  
 1 ft of soil

valley area



hill crest  
 sandy loam  
 (see 2 pages on)



Off Crescent Ave. a  
 cut for new street  
 shows yellow loam  
 above, then blue loam.  
 its upper part with many  
 tubules or nodules, &  
 full of fossils - the  
 drift -



cut X a streak of blue  
 (typical) about  
 a 1/2 ft deep. but it looks  
 as if yellow lens was  
 below it again. The  
 lower yellow lens is probably  
 continuous.

The sandy stuff at y-in.  
 must have sand in part,  
 & to have a lens  
 laminated  
 in out there to yellow  
 lens above it.

cut cor of Jerry Ridge  
 road & Eddy St. Davenport  
 (where car turn)

facing W. is a  
 bank like the

---

2-3 ft Red - Locust,

---

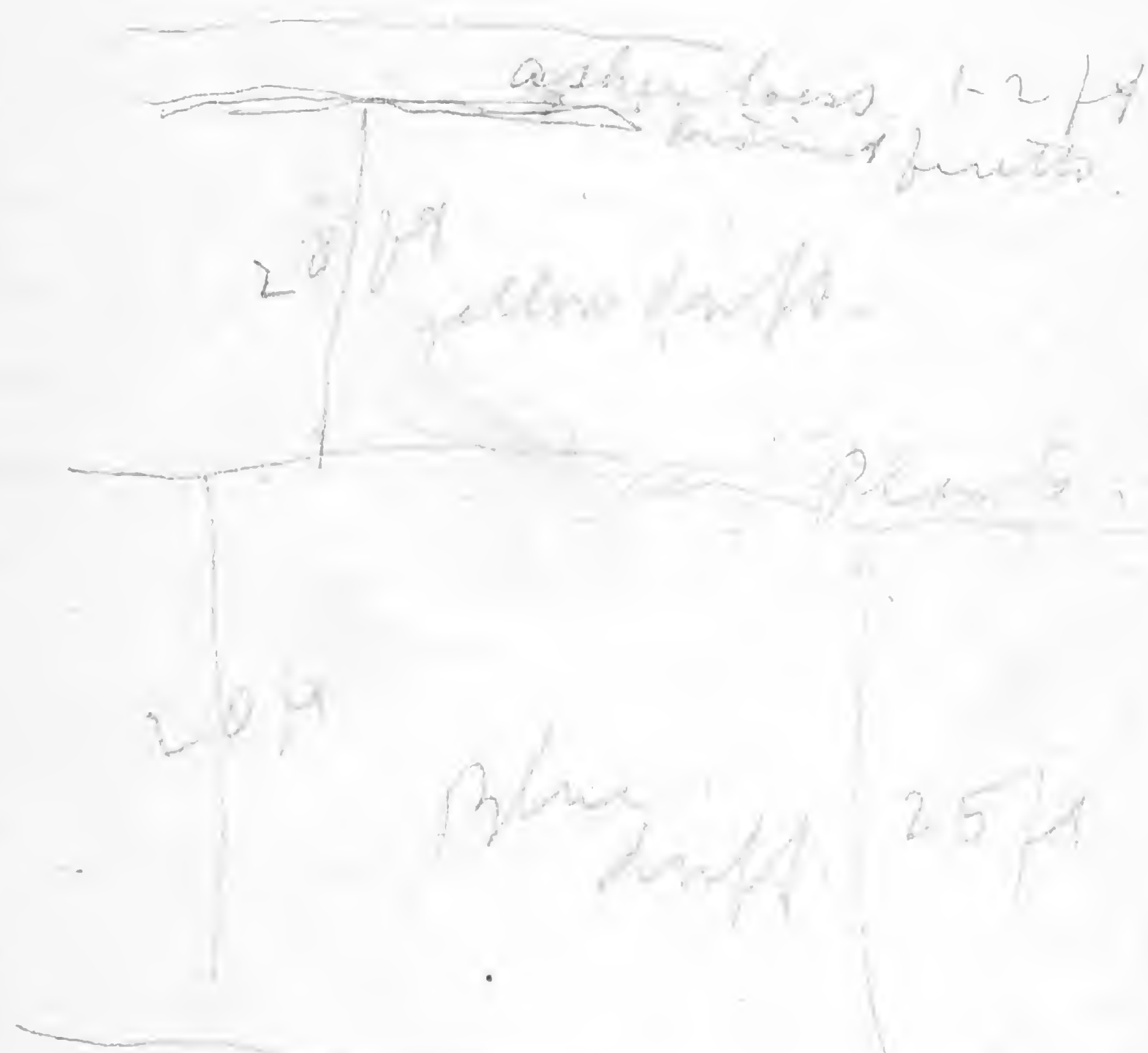
4 ft sand (loamy - like  
 in the hill E.)

5 ft { Blue lens - thick  
 of it pure blue -  
 some yellowish  
 mostly white  
 plentiful

---

sand  
 laminated, etc

N. side of ~~Cannon~~ <sup>the</sup> ~~the~~  
 of Harrison



I found shells in  
 overwash from loess, -  
 none by digging except  
 in loess.



Oct. 22 - 1904

are a great for  
 water shown beneath  
 lower down - some  
 with iron - some with no  
 water - but - all  
 the fossils

At (1) there is a gully at  
 back of ravine, N. of road.  
 Several cuts are there  
 showing that everywhere  
 blue lies underneath  
 yellow on top. The

pebbles & no fossils -  
 about 100 N. of road,

on W. side of ravine  
 a little side ridge has  
 drift exposed - it is

quite pebbly below, grades  
 into blue joint clay on top &  
 this has a few small  
 pebbles & on that are  
 about 2-5 ft. of yellow  
 loess -

on low, just off  
 road - some time  
 out

then, just off

The line between the yellow  
 loess & the blue drift clay  
 is fairly distinct - just  
 3 miles - just 2

I found no trace of fossils  
 in any of these

Near bottom of road & near  
 road (just where it passes  
 bottom has been cut off  
 road, I found a little  
 of the blue joint clay  
 with a few small pebbles  
 exposed.

A little lower the road  
 & several feet below  
 was real blue loess -  
 lime nodules & tubules, & a  
 few fragments of shells -  
 Scavaria is the only (see spec.)



are - a trust  
 under shown  
 from below  
 with iron  
 yellowish

a line that is a little  
 yellow brown

The whole brown is  
 stamped, & overgrown  
 with iron. Higher points  
 now all the blue stuff -  
 This place is a small  
 area (seen for a long time)  
 marked by iron at  
 the head. The surface  
 to judge yellow is a brown  
 and yellow

9 - new road has a side  
 of main road -  
 yellow over at top of  
 a little blue shows  
 at foot of slope -  
 not yellowish

the air rather low, just below  
 of small creek, and below  
 12 ft above it.

The upper 6 ft from yellow  
 brown - no iron

This brown is a  
 blue point above the surface  
 with small pebbles & large

grains of sand - the  
 few only - (one sample)

The transition takes  
 place within 3-6 ft.

2  
 in foot west of little creek  
 about middle of section  
 2 to 6 ft deep out top

yellowish brown  
 yellowish brown  
 yellowish brown

yellowish brown  
 yellowish brown  
 yellowish brown  
 yellowish brown  
 yellowish brown

yellowish brown  
 yellowish brown  
 yellowish brown  
 yellowish brown  
 yellowish brown

The lower is yellow, more  
fragmentary & probably  
brown.  
The line between it & the  
is sharp.

This is a very small  
(estimated 200 ft) band  
running from top of hill  
of hill.

The lower part of the  
band is very much  
is almost horizontal at  
its base. -

This shows on S. side of  
road, but the section  
is better on N. side.

1/2 way up the hill there is  
a foot of bluish clay  
with some green of sand.  
It changes to brown above  
& grades in some places  
into Buckhorn gravel,  
with which it seems to

be closely connected.  
The lower is yellow sand  
(brown) & there are  
no fossils - or white  
or nodules -

4 - In a small pit (ft deep)  
all in yellow sand  
on W. side of road only -  
5 ft deep shows

Buckhorn gravel  
a foot of yellow sand  
just S. of the road  
hill shows up to 5 ft  
at its base Buckhorn  
around shows but  
above only shows  
the rest is long but  
not deep.

Small brown gravel  
2 or 3 ft + 5 ft  
low with tabular  
and fossils -  
on S. side road.



120

m - a long cut - up hill  
only 2-4 ft deep &  
all yellow loam -

becoming mottled with  
below - no fossils

n - is a low cut 2-6 ft deep  
on long hill sloping up to  
N. E.

Then is some as m  
o - is on long hill & shows  
same as m & n except  
that at base, a little  
gravel is exposed.

121

cut about 2 ft deep  
6 ft deep



the yellow clay, its  
lighter from both more  
colored - with roots

There are light the trunks  
surrounds by roots as seen  
as if bits had been  
leached by roots decaying  
there are usually about  
from 1 to 4 ft from top



no fossils

Oct. 23-1904

Gambusia (Gambusia)  
In upper part of  
blue layer - with 1 ft,  
found fossils - brown  
fossils.

They were very faint.  
The exposed bed is in  
some places, brown  
making a part between  
of soil that seems to  
be blue layer.

Upper part is yellow  
brown (black & white with  
angular yellow) & is full

of fossils - which are  
plentiful 1/2 of the  
way up the bank, which  
is about 16 ft. high.  
About 2 ft. of the  
blue layer -

The yellow layer is  
less fossiliferous  
southward - the blue  
northward.

If only 3. or 4. of column  
was visible I would think  
that these layers were  
fossils & yellow layer.  
But certainly, southward  
the reverse.

The fossils in yellow  
brown are not so good.

The dark part is brown  
(about 1/2) in soil  
appears in picture as  
another than blue  
part.

A few nodules  
in upper layer & some  
fossils are found  
in lower, especially  
in its upper part.  
The exposed layer between  
the two layers shows  
fine lamination - many  
& irregular, but  
parallel.



The same soil with cotton through both  
layers & will have cylindrical shapes  
in yellow brown & reddish layers

124  
blue loess. In some place a reddish  
core extends into blue loess & is  
surrounded by overlying layers.  
(See photos)

When loess was scraped  
up, line could be seen  
between the matter &  
dry part of the loess.  
The upper loess showing  
streaks of blue (reddish)  
loess, each with dark  
central line (roots)  
The blue lines  
usually  $\frac{1}{4}$  to  $\frac{3}{4}$  in  
diameter.

The top 2 or 3 ft. is  
lobular & redder than  
lower part.

Sod (a black line from  
3 in thick forms a  
continuous band, but  
below that no black  
soil!)

125

Oct. 25 - 1904

S.W. - from well chick  
b. - cut six feet deep in  
N. side of

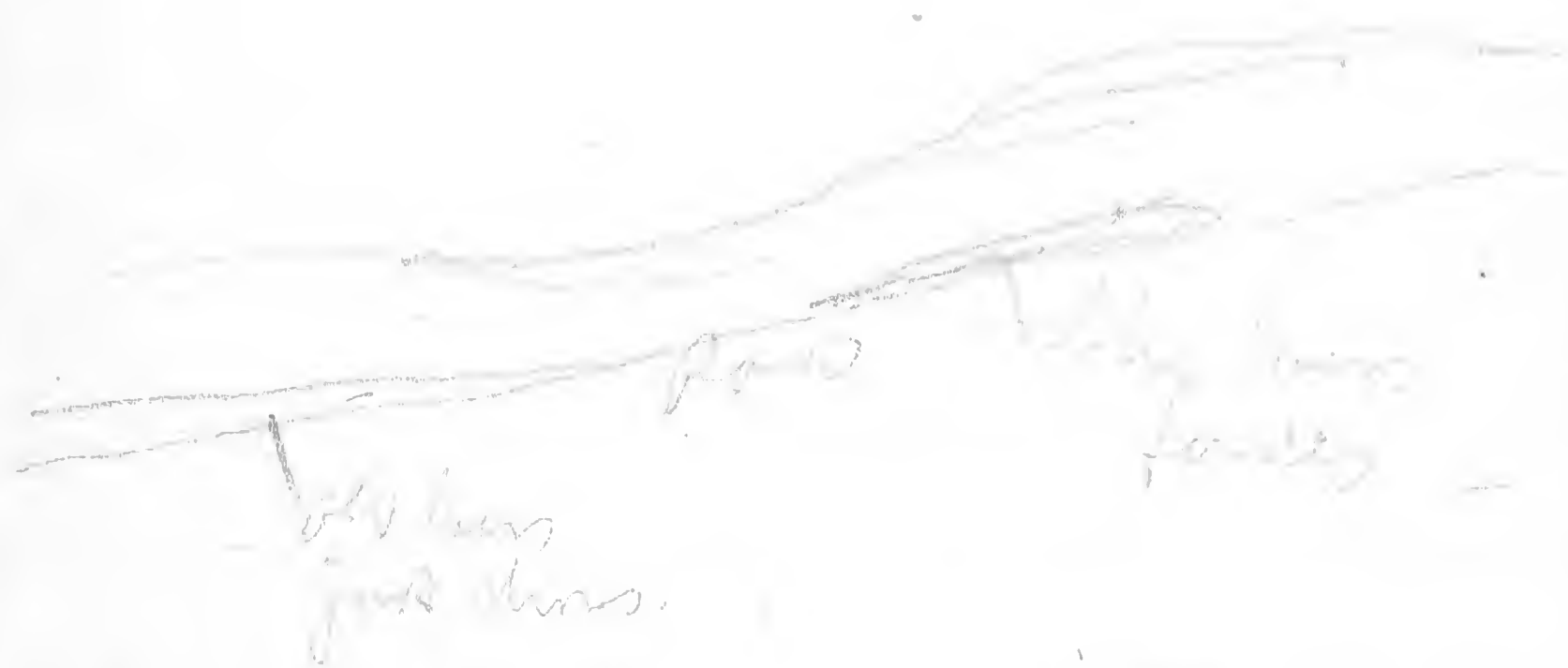


See 120



at the  
m = 1/2 in  
faint  
about 5-7 ft  
of yellow loess  
the bottom  
part of the  
cut is  
in a yellow soil to the right  
at base.

at 9 on sec. side  
 about 7 ft of yellow  
 loam is exposed in south  
 & at bottom, forming  
 bottom of yellow loam  
 brownish loam, full  
 of tubules.  
 The soil is very fine going  
 up to 800.  
 The blue loam shows  
 some joints, especially  
 on upper slope.



The line between the two  
 loams is sharp. In  
 places there are more  
 tubules in the blue

in other no difference  
 to line - but change  
 about.  
 The blue loam is  
 brownish nearly to top  
 of hill on both sides  
 of road - about 10 ft  
 on E side -  
 yellow loam - is 5 to  
 6 ft. deep.  
 The road runs  
 across - from E to W

at a tower  
 on the E side 3 or 4 ft  
 the bottom of  
 loam - the soil is full  
 of tubules & the blue  
 soil is fine  
 at a long hill side  
 showing no more the same  
 as the blue 3-4 ft





It is yellow loam & in an  
inch or two goes into  
Mendocino gravel & the  
surface is 4-6 ft thick  
than the loam.

Loam has no fossils etc.

At 2 1/2 - 3 ft of loam  
vertical surface. It is  
granuloblastic but fine &  
quite soft. White  
loam - I could not make

out loam clearly, although  
that Mendocino is distinct  
below.

The loam contains yellow loam  
& blackish granitic material  
as within an inch. It  
is quite soft.

There is no blue loam.  
The granitic loam is green  
& sand & small pebbles -  
especially on lower part.  
This exposure is best  
seen at 3 places shown  
well.

There is no blue loam, but  
blue nodules appear in lower  
part of yellow loam.

At 1 n. of the little stream,  
blue loam appears below  
6 or 7 ft. of yellow loam -  
shattered & greenish in  
difficult to describe, but  
loam is typical, with  
more oxide of iron part  
than the upper loam.

The small nodules of iron  
are not good & only show about  
3 or 4 ft. of yellow loam.  
At 2 - 4 or 5 ft. of yellow  
loam only.

At 5 on down slope, yellow  
loam for 6 or 7 ft, but in  
gutter) the sand part  
shows laminae of blue  
streaks & bands (or iron  
ore?) - At 2 badly  
shattered & overgrown &  
doesn't show well -

Good, under a tree -  
The upper reddish lobes  
over show margin of blue  
fruits -

Place with a large, to  
be seen, but no more.  
Cut W. yellow clay, then for  
4 or 5 ft. exposure of slope  
(N.) showing small stones  
at its base.

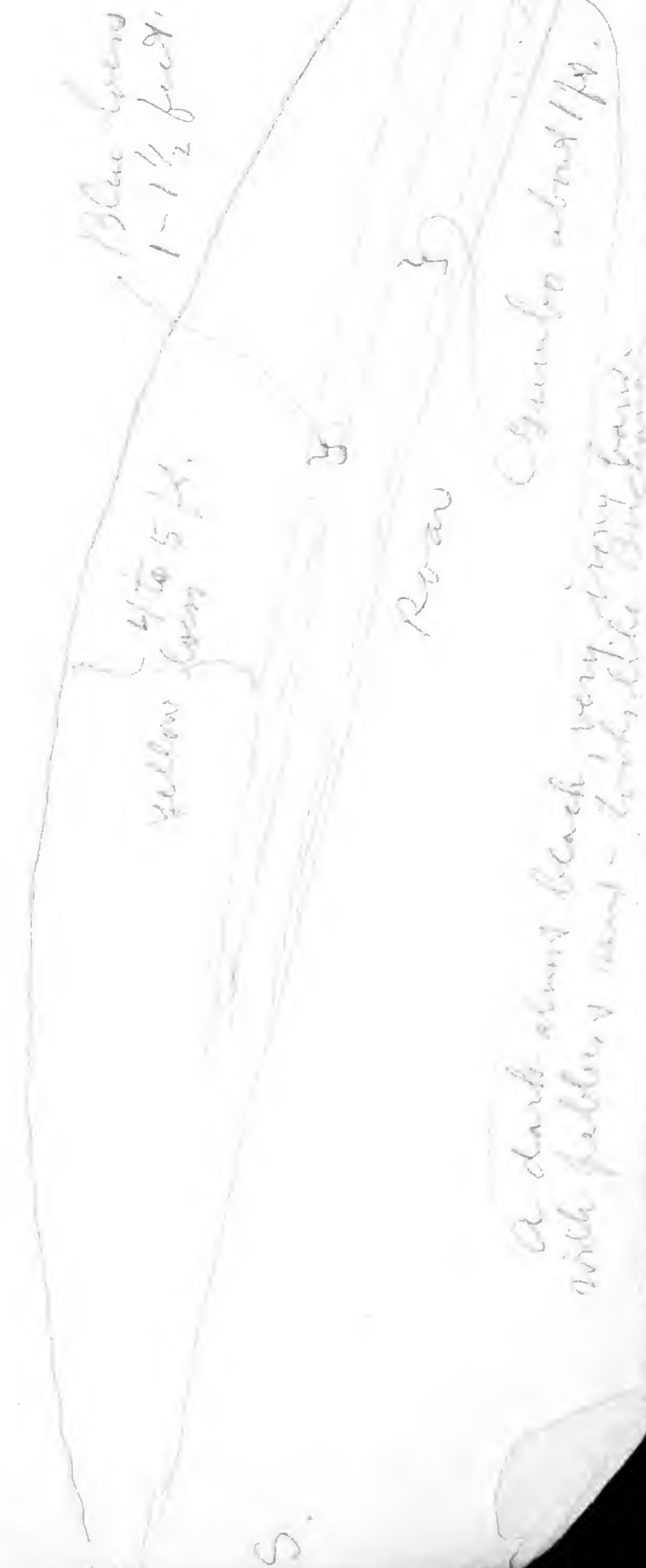
at x there is a low cut in the  
hill sloping W. - 4 to 6 ft is  
exposed & it is all yellow  
loam, but in the lower  
part it is streaked with blue  
horizontally, & is compact &  
somewhat puffy like -

The hill E. is not quite so  
good, - but similar -

at y - (shows best on W.  
side of road) there is  
a very interesting section.  
No fossils were found, or

noticed no nodules.

Between the two layers is a very  
distinct band (= Puchan?)



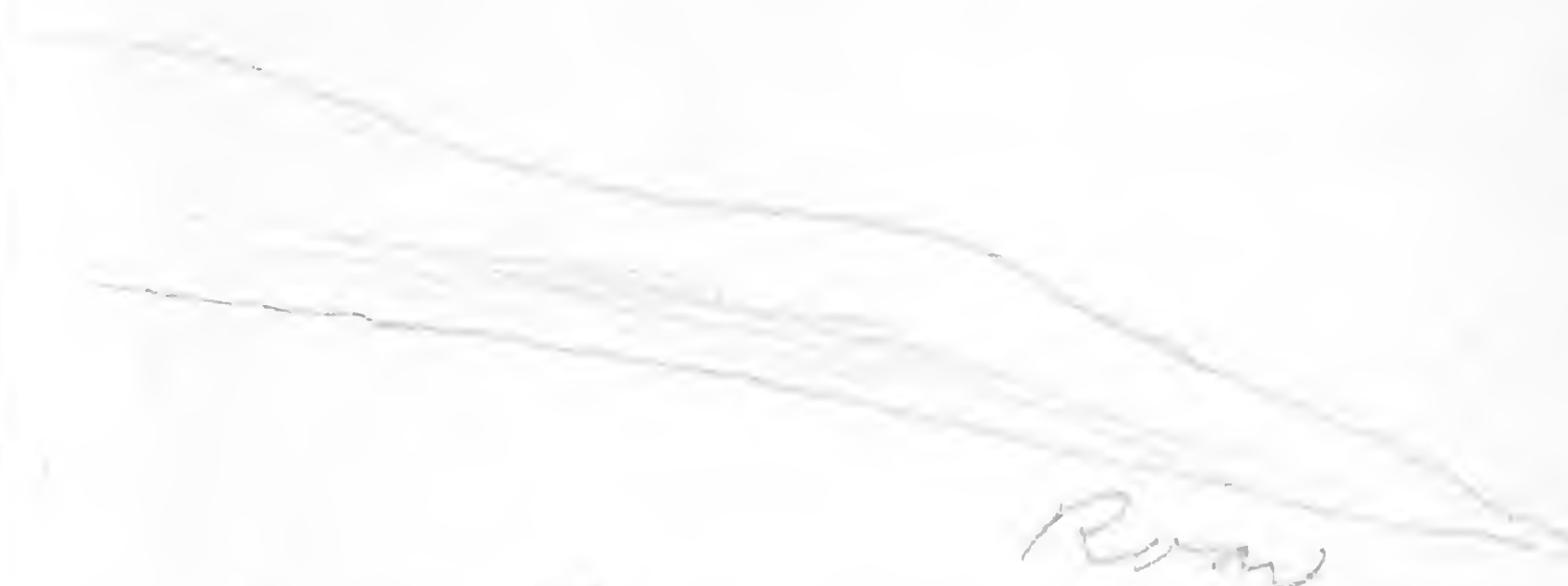


at 3 there are two small  
cuts showing only yellow  
loam.

At 8, in sec. 17-79-6 there  
is a cut along road.

Near center of sec. 17-79-6  
on S. side of road there is  
a long cut which in  
lower (western) part shows  
Buchanan (with Kansan below)  
at base of bank, then a  
foot or two of gumbo which  
is capped by ~~gumbo~~ <sup>yellow loam</sup> —  
~~rather~~ the line being with  
rather sharp. Half way  
up, but for a long stretch  
the slope is gentler, &  
here the gumbo grades up  
into blue loam (no fossils) &  
this is capped by yellow  
loam, with oxidized distinct  
zone between.

On upper part — near



Road

top of hill, only  
yellow loam seems to  
be visible.

W.

134

135



136

137

Mr. Eugene De Mier  
Alamogordo, N. Mex.

R. E. Banner, photographer

Kearney City

no. 1 - near cor. W. 6<sup>th</sup> + Washington  
on Washington abt. E. side of str.

no. 2 - same - different view



140

(note) { View over the yard  
 looking W.  
 Two sets of ancient higher Cholla -  
 Spent in - m fr.

Observation.

Cloudcroft,

A. - Denuded mountain

18 - Natural forest (looking toward sun)

141



Aug 27

Breakfast - Columbus 60 .50  
Dinner on train .60  
Supper " " .70

Aug. 28 - 1.00  
Sleepers Breakfast .50 1.50  
Dinner 60 Paper 50 Paper 5 1.15  
Supper 60 .50

Aug. 29 -  
Breakfast 45 Dinner 70 1.35  
Cards & stamps 55 Booklet 10 .65  
Carfare 30 Soda 5 Basket 15 Paper 5 .50

Aug. 30 - Alpine -  
3 meals (team) 1.85

Aug. 31 - El Paso.  
Room 75 Breakfast 50 Dinner 45 Supper 25 1.95  
Soda 20 Train 15 Paper shoe 10 Sticks 130 1.95  
Direct carfare 10 Car stock 20

Sept. 1 - Alamyado.  
Peaches 25 Basket 10  
Sept 2 - 4 baskets 20 on cloudcroft  
(wages) (wage) 1.50 Lunch 25  
Sept 3 paper 25 - Peaches 25 Supper 50  
Soda 15 Paper 15 Paper 15 7.50

Sept. 5 - "Meat" 1.00, Canned 50, gas 10  
hauling box 25 -

Sept. 6 Breakfast 60, Dinner 1.00  
Sept. 7 Paper 5, shoe 10, paper 10, lunch 50  
dinner 60  
stock 25

Mrs. A. C. Arnold  
472 - 12<sup>th</sup> str  
Lme flat.

Manager of Retamag  
Total

Varol is a brother in law  
of daughter in law of  
Mr. Arnold



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11-11-11

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Wm. H. H.

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